

AMERICAN BEE JOURNAL.

EDITED AND PUBLISHED BY SAMUEL WAGNER, WASHINGTON, D. C.

VOL. II.

DECEMBER, 1866.

No. 6.

Bee-Culture in Cottage Hives.

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An abundant honey-harvest can, of course, be looked for only after the apiary has been well established and organized, containing the full number of store hives of which its proprietor designs it shall consist; for till then the daily gatherings are largely devoted to the multiplication of stock, and the equalization of colonies. But even when that point is attained, a rapid and lucrative accumulation of stores can only be secured if those colonies are healthy, vigorous, and populous early in the season, and reach the culminating point as regards strength just prior to the blossoming of the white clover. Only when in this condition can honey be rapidly and plentifully gathered by them. The briefer the period during which pasturage abounds in any district, the greater the necessity of having strong colonies ready to take the field at the opening of the season; and hence it is frequently very advantageous to stimulate the production of brood at the close of March, or the beginning of April, by feeding them moderately, yet regularly, with diluted honey.

Another chief requisite in the formation of store stocks is that they should be placed in capacious hives, affording ample space for the storage of honey and the accommodation of brood, so that swarming—always injurious to a store stock—may be effectually prevented. The accumulation of honey is now our exclusive object. Our ample hives, having a diameter of fifteen or sixteen inches, and being eighteen or twenty inches high, are still regularly enlarged, when pasturage abounds, by the addition of a surplus honey-box; and from many of these hives we have taken from fifty to sixty pounds of honey each in autumn, leaving them a full supply for the winter. But this can only be done, even in the case of such hives, by never undertaking to winter any with a supply of less than from forty to fifty pounds clear honey. Such an investment is sure to yield large profits.

It is very advantageous also to be provided with a liberal supply of empty combs in surplus

or collateral boxes, in which the bees may at once deposit their gathering, thus saving time and honey, which are indispensable requisites for comb-building. The preservation of empty combs is difficult at times, because they are liable to be attacked by the larvæ of the wax moth or miller. But the depredations of these pests can be prevented by making air-tight the boxes containing combs for preservation, and occasionally filling them with the fumes of burning brimstone. In the fall, winter, and early spring, they should be kept in a cold room.

In default of surplus or collateral boxes containing empty combs, narrow strips of worker combs may be attached to the interior tops of the hive by dipping them in melted wax or strong mucilage, and will serve both to attract the bees and give direction to their labors. And when no such strips are at hand, the box may be made more attractive to the bees by brushing its interior surface with liquid honey. In supering we find it useful to place the top-board taken from the hive on the super, as the bees will readily start combs on the comb-foundations adhering to its inner surface, and are thus induced to fill up the vacant space below much sooner than they otherwise would. But we must also be careful to place the top-board so as to cause the new combs when built to cross those of the main hive below, as the super can thus be more easily taken off when filled. Bees generally refuse to build in surplus or collateral boxes till the main hive is full; yet it is advisable always to make these accessible to them a short time in advance, as that helps to prevent swarming, and the bees become seasonably apprised that they need fear no deficiency of room in their domicile.

Supers for surplus honey are preferable to collateral boxes, where the hives used are standards; but in enlarging lagers we prefer setting the surplus honey-box in the rear, because in the hinder part of such hives brood is seldom found.

To prevent swarming during the gathering season, and keep the bees from hanging out idly, by moderating the internal temperature, we ventilate our hives, as stated in a previous

number, and seek besides to provide them with shade during the heat of the day. When pasturage is very abundant, we enlarge the entrances of our hives, or open additional ones higher up, thus giving free passage to an increased number of workers.

Nadiring—that is, introducing ekes or sections at the bottom of a hive, does not promote, but rather prevents, the accumulation of stores, because the bees are thereby tempted to build combs therein, and the queen to supply them with eggs. We therefore avoid this mode of enlarging, unless we desire to provide combs and brood for a nucleus or a queenless stock.

Another mode of aiding store stocks in the accumulation of honey is by transporting them from one district to another, according to season or the abundance or scarcity of pasturage. This, though a common practice in some countries, such as Lunenburg, is not generally available, and may not, therefore, be looked upon as among the ordinary resources of bee-keepers. But when it happens that by a removal of a few miles bees can be placed within reach of fields of buckwheat, esparcette, mustard, or white clover in blossom, or extensive ranges of basswood or locust trees in bloom, the cost and trouble of the transfer will be richly repaid, if the weather be favorable to honey-gathering.

It is the practice in some sections, and has been recommended by such expert apiarists as Strausz, Knauff, and Vitzthum, to drive out the bees of strong stocks at the beginning of full pasturage in the spring into an empty hive, placing them on their accustomed stand, and appropriating the contents of the full hive. This is to be done, indeed, only where further enlargement of an apiary, or multiplication of stocks, is no longer desired, and a mere renewal of the combs is designed. But unless the queen has been removed or lost nearly three weeks before, this process involves the destruction of a large amount of eggs and larvæ, and much unpleasant labor. To avoid this, some place the deprived hive on some other strong stock, opening a communication with the top, and so let it remain till fall. It is then removed, and the contents extracted. But this operation will be successful only in case the lower hive is filled; otherwise the stores in the upper will be carried down into the lower, while the brood is maturing. The supposed advantage of this operation consists in the construction of new combs, for which, however, much honey and precious time are required. All this would have been saved by letting them remain in their old hive till fall, then driving them out, uniting them with some other colony, and preserving such of the empty combs as are still in good condition. Where an apiary contains its full complement of stocks, or the owner does not desire further increase, it is more judicious to drive out the bees of his oldest and heaviest colonies, unite them with others, and appropriate the stores. The renewal of combs should be effected at a period when the labor of the bees is of less value than it is at the time of full pasturage in the spring.

It has furthermore been proposed to strengthen weak colonies by transposing them with full

ones. But this seems literally to be "robbing Peter to pay Paul." It would be a splendid financial operation if a man could enrich himself by transferring half the contents of his full purse into his empty one. By such transposition we merely weaken one hive as much as we strengthen the other—an equalization of no value at the gathering season, however useful it may be at a later period. Besides the weak colony is never nearly so much benefited by such an accession when pasturage abounds, as the strong one is injured by the loss, since a proportionably much smaller number of bees can then be spared for out-door labor. If the weak colony has a feeble or superannuated queen, all such efforts to reinforce it must prove abortive in the end. They are only admissible in a case where a colony has been greatly reduced by some accidental cause, and we are certain that it still contains a young, healthy, and prolific queen. In all other cases, the surest course is promptly to unite a weak stock to a strong one. There is, indeed, one mode of strengthening stocks, which is always commendable—the union, namely, of afterwarms with old stocks, or that of two or more afterwarms with each other. But, as on our system of management the expert apiarian will prevent afterwarning in his "bailiwick" as much as possible, he will seldom be under the necessity of availing himself of this process. But when the occasion occurs, he will find that the strong stock is greatly aided by the accession; and he will save himself the vexation of nursing up constitutional invalids—predoomed victims of the moth.

The Baron of Berlepsch regards restriction of brooding from the latter end of June as a principal means of securing an ample honey harvest. For that purpose he removes all the old queens from his colonies, and lets the bees rear young ones; whereas Dzierzon confines them in queen-cages from about the same time to the close of the gathering season, thus preventing the production of brood altogether during a prolonged period. Berlepsch says he obtains from twelve to twenty pounds of honey more from colonies deprived of their queens than from those not so treated. The difference seems to us enormous, for it would thus appear that from twelve to twenty pounds of honey would be required for the use of the brood from the end of June to about the first of August, when the young queens will have become fertile, and new brood make its appearance, in the combs—though ordinarily, in undeprived colonies, brooding begins gradually to diminish after the first of July. Be this as it may, it is no easy task to catch and remove the queen from a large cottage hive, which will usually be found, at the end of June, crowded with bees, and crammed with honey; and we must hence forego any advantage which might result from such deprivation while using such hives. The most we can do to restrict brooding in them is to cease enlarging them by *nadiring* or adding sections at the base.

As soon as surplus honey and collateral boxes are filled with combs and honey, and the latter is chiefly capped in the cells, they are to be re-

moved, and empty ones substituted, if pasturage continues to be abundant. We remove them easily by slightly raising them after dusk, so as to admit air freely, and cooling the interior. During the night most of the bees will withdraw into the main hive, and the remainder can be expelled by means of smoke. Be careful to ascertain that the queen is not in one of the removed boxes. By gently tapping on a surplus honey-box, the queen will be induced to leave, if she happen to be there; and if found therein after removal she should be immediately restored to the hive, unless she be an old one, for which you can substitute a fertile young one from a nucleus hive.

It Stings.

"How pretty!" cried little Sam, as his little fat hand grasped a bunch of white lilac which grew near the gate of his father's mansion. The next moment the child's face grew red with terror, and he dashed the lilac to the ground, shrieking,

"It stings! it stings!"

What made it sting? It was a bright, beautiful, and sweet-smelling flower. How could it hurt the child's hand? I will tell you.

A jolly little bee in search of a dinner had just pushed his nose in among the lilac blossom, and was sucking nectar from it most heartily when Sammy's fat hand disturbed him. So, being vexed with the child, he stung him. That's how Sammy's hand came to be stung.

Sammy's mother washed the wound with hartshorn, and when the pain was gone, she said: "Sammy, my dear, let this teach you 'that many pretty things have very sharp stings.'"

Let every child make a note of this—MANY PRETTY THINGS HAVE VERY SHARP STINGS. It may save them from being stung if they keep this truth in mind.

Sin often makes itself appear very pretty. A boy once went to a circus because the horses were pretty and their riders gay; but he learned to swear there, and thus, that pretty thing, the circus, stung him.

Another boy once thought wine a pretty thing. He drank it, and learned to be a drunkard. Thus wine stung him.

A girl once took a luscious Bartlett pear from a basket and ate it. "Have you eaten one?" asked her mother. Fearing she should not get another if she said yes, she said "no," got another pear, and then felt so stung that she could not sleep that night.

Thus you see that sin, however pretty it looks, "stings." It stings sharply, too. It stings fatally. The Bible says: "The sting of death is sin."

If you let sin sting you, nothing can heal the wound but the blood of Jesus. If you feel the smart of the sting, go to Jesus with it, and he will cure. After that never forget that many pretty things have very sharp stings, and be careful not to touch, taste, or handle such things.

—S. S. Advocate.

The Egyptian Bee.

ITS ACCLIMATISATION IN THE NORTH OF GERMANY.

[Continued from Page 89.]

Herr Vogel next discusses whether the Egyptian bee is more sensitive in rough weather during summer than the Northern and Italian varieties. In reference to this question he says: "Although the average annual temperature of a country or place is all that is generally stated with regard to its climate, it is not sufficient merely to quote the medium annual temperature of Egypt and North Germany, in order to judge of the probability of the successful acclimatisation of the Egyptian bee, but a statement of the average temperature of shorter spaces of times becomes necessary. We will, therefore, compare the temperature of Egypt and North Germany for the first five months in the year, according to Reaumur's thermometer.

	January.	Feb.	March.	April.	May.
Cairo (30° N. lat.	16.60	10.72	14.48	20.40	20.56
	May. June. July. Aug. Sep.				
Berlin 50° 20' N.					
lat., and 31° east					
long.	10.92	13.94	15.04	14.43	11.75

"Between the temperature of the winter months at Cairo, and the summer months of Berlin, we find a difference of but a few degrees. In Cairo the thermometer in winter sometimes falls as low as 3° below zero of Reaumur, but only for a short time. The chief harvest time of the Egyptian bee in its own country is during the coldest months of the year—from January to March. In May the harvest is finished in the lowlands, and many districts in Egypt then look like a dead desert. The Scharaki districts only, which in consequence of artificial watering give three harvests annually, furnish occasionally some pasture for the bees. In districts in Germany which are poor in honey, the chief gathering takes place in May, June, and July, and these months have the same temperature as the Egyptian winter. The Egyptian bee is, therefore, quite at home in our summer—as happy as 'the little fish at the bottom of the sea.'"

"At from 10° to 12° of Reaumur (55° to 60° Fahrenheit,) the Egyptian bees are in full flight, at which temperature our native bees generally only begin to take wing. When the bees of an Egyptian stock begin to fly, it is not only a few single bees that fly out for some time, but the whole stock is immediately in full flight. The Egyptians always rush forth from the entrance like ants from a hole made in their nest. During mild days in November the Egyptians carried in pollen and honey, and came home in full flight, whilst only a few single bees of the other species were to be seen. I never saw Egyptians chilled. A German or Italian bee is very soon overtaken by an Egyptian bee in a race; the quickness of the children of the Nile is, however, most apparent in the queens. A fertile German or Italian queen walks but slowly and heavily on a comb, whilst an Egyptian one runs as quickly from one side

* "Wie's Fischlein auf dem Grund."—GOETHE.

of the comb to the other, as the comb can be turned round. Great activity, quickness, and agility are the general characteristics of the natives of warm countries, and by this observation in natural history, the above-mentioned peculiarity of the Egyptian bee may be explained.

"During the hot season in Egypt, the thermometer stands at 26° to 30° R. (92° to 100° F.) in Upper Egypt, even in the shade, 30° to 34° R. (100° to 110° F.) Cairo has an average temperature of 22.96° R. in June, 23.92° in July, 23.92° in August, and 20.96° in September. One might suppose, therefore, that the Egyptian bee would continue to fly out and to work in Germany even in the greatest heat, because it must have been accustomed to as great a heat in its native country. Such, however, is not the case. The Egyptian, like the Northern and Italian bees, cease working when the temperature of the interior of the hive has reached about 30° R., (100 F.) and like them they remain inactive, some on the combs and inner walls of the hive, and some outside the entrance. If the bees were by their activity still more to increase the temperature of the interior of the hive, the waxen combs must soften and fall down. The inactivity of the bee, therefore, during very great heat in the interior of the hive, is evidently an effect of instinct. In Egypt, also, the bee is inactive in the hot season, for the country is then bare of flowers.

"THE EGYPTIAN BEE IN THE WINTER OF GERMANY.—In Egypt the bee is able almost every day to hum joyfully through the air; but Germany has a winter in which the temperature not unfrequently falls to 20° or more below zero of Reaumur, and the cold keeps the bee imprisoned in its hive. Already before the actual introduction of the Egyptian bee, the question has been mooted whether the hive-bee of Egypt could survive our severe winters. From the beginning I believed the Egyptian bee capable of wintering here, and I supported my opinion by the following passage from 'The Acclimatization Journal' for 1864, page 40:—'The genus *Apis* has a very peculiar nature—i. e., all the species, including the different varieties of *Apis*, have a similar and unchangeable nature and manner of living.' Let us consider, then, that the genus *Apis* lives in permanently organized societies, and in this forms an exception among the class of insects. Humble-bees' and wasps' societies are dissolved in autumn; the fertile females only hibernate during winter, and survive till spring. Our ants also certainly live in lasting communities, but at about 1° R.; they likewise hibernate, and the genus *Termes*, which belongs to warm climates, is not to be compared with the bee. The bee does not hibernate, it only passes into a state of rest in winter, which state is evidently conditional upon the want of that degree of warmth which is necessary for its activity. Any organic cause for the winter's rest of our bee does not exist, as it prospers equally well between the tropics without any rest in winter. The specific or personal temperature of an individual bee is very low indeed, yet the whole

society in the hive produces a higher temperature, which may be felt. According to experience, the production and supply of animal warmth is intimately connected with the process of breathing and nutriment. The bee possesses a trachean system like no other insect known to Leuckart (*vide* Von Berlepsch, 'The Bee and Bee-keeping,' page 188.) The more severely the bee is attacked by cold in winter, the more food it consumes, and the more it accelerates its breathing, until by actual humming it produces that degree of warmth necessary for its existence. The extremity of the abdomens of those bees which hang on the outside of the cluster often come very near to the hoar frost in the hive, whilst in the heart of the cluster there are from 9° to 12° of warmth.* It is universally acknowledged that the lethargy into which our bee falls in winter is contrary to its nature. Likewise it cannot be disputed that the winter of Germany is contrary to the nature of the Egyptian bee; it will, however, survive our winter just as well and just as badly as our Northern bee, if it be kept in hives which afford shelter against too great cold. The genus *Apis* belongs to the cosmopolites among animals, and is able to prosper in countries—the seasons of which have an extreme climate.

"Dr. Buory also states from experience, in 'The Acclimatization Journal,' (1863, pp. 295, &c.) that a transplantation of animals from warmer to colder countries is more frequently successful than unsuccessful.

"The Egyptian stocks are quiet in winter. During only the most severe cold (3d and 4th of January,) they caused a low humming to be heard, just like the German and Italian stocks. It may also well be supposed that the trachean system of the Egyptian bee will be strengthened by a greater activity during our winter. On the 16th of this month, (January, 1865,) the bees of an Egyptian stock were flying quite strongly at 4° in the shade, and 9° R. in the sun, between 10 and 11 o'clock in the morning. No bee got chilled, and no sign of dysentery could be perceived. I could not suppress my curiosity, and opened an Egyptian stock. When I merely looked over the floor of the hive I was greatly delighted, for but a few dead bees lay there. The stock was perfectly healthy, and the queen, with her abdomen full of eggs, paraded the combs as if in summer. In two hundred to three hundred cells, eggs and larvae were found. To-day (January 28th,) at noon some bees were seen at the entrance of all the stocks, and in the Egyptian stocks also there is as yet no trace of dysentery. These observations speak strongly for a fortunate wintering of the Egyptian bee."

I may here add that Herr Vogel's favorable anticipations were completely verified. His Egyptian protégées passed the ordeal of the German winter of 1864-5 unscathed, and were introduced into my apiary rather late the following summer, with what result will in due course be related by—A DEVONSHIRE BEE-KEEPER.

[TO BE CONTINUED.]

* 52 to 59° Fahrenheit.

[From the (London) Journal of Horticulture.]

Longevity of Bees.

With regard to the life of the working bee, particularly during the working season—say from April till August, I think it is very short, rarely exceeding two months. In proof of this a singular circumstance happened to one of my hives containing Ligurian* bees, obtained in May from Mr. Woodbury, which I will here relate. On the 1st of June I had a prime swarm from an ordinary stock of black bees, which had hardly settled in an adjoining hedge, when my only Ligurian hive unexpectedly threw a swarm, which at once joined the other. As I was absent at the time in the city, my gardener was afraid to hive them together, irrespective of the chance of being stung, as they were evidently in a state of great excitement. On my return home, I, after some difficulty, got them into a large hive, having first captured the Ligurian queen, whose person during the operation I could not mistake from the large size and golden color of her body. I then determined to return the united swarm to the original Ligurian stock, which I did during the evening (a process which I have always performed satisfactorily without any fighting, many times during successive years, simply by giving three puffs of tobacco-smoke to each swarm to be united, and so making them all smell foully for the time.) I, of course, put on a large straw top, otherwise they could not then all have found room, and looked forward to at least 50 lbs. of honey from this immensely strong hive. As it was, however, they now managed by dint of squeezing to keep nearly all in the centre box, and though I had guide combs in the super, they did not extend them, evidently bent on not remaining. I looked out the next afternoon and evening to see which queen was turned out dead, as I have almost always found one on the ground in this plight within twenty-four hours, but could see nothing of her. On the 19th of June, at 11 o'clock, the whole united mass swarmed again, and such a swarm I never had in all my experience. They tried to settle on two or three shrubs and trees, but all the boughs gave way, and the whole mass kept falling to the ground; at last they went into a hedge, which sustained them, and they were hived in a large straw cover ready at hand.

On examination I found that the Ligurian and common bees were so intermingled, both in the swarm and the stock from whence they came, that it was impossible to state which was Ligurian and which not. Now also came the question, which has the Ligurian queen? I thought this a good opportunity to test the respective ages of each sort of bee, should it so happen that the old Ligurian queen remained in the stock, and the common queen with the swarm, or *vice versa*. I therefore put the combined swarm into a Stewarton hive, and on the next stand to the Ligurian, so as to afford the greatest facility in watching. At first I noticed

that the swarm was pretty equally divided between Ligurian and common bees, perhaps, if anything, the former being in the majority. As regards the stock, I should say the Ligurians were as five to three, a decided majority. Both worked well, and considering the comparatively empty state of the stock hive immediately after swarming, it was wonderful how rapidly the latter increased again in numbers. Within three weeks I began to notice in the stock that the common bees were dwindling away, although in the swarm they were still about equal. Within the month the stock became five to one in favor of the Ligurian, and the swarm then began to show three or four to one in favor of the common bee, and I could easily see in the swarm numbers of the young black bees daily coming out on the alighting-board. In a similar way I could see in the stock the young Ligurians. This at once showed to me that the old Ligurian queen had remained in the stock hive, whilst the old common queen had led out the swarm. Within five or six weeks the relative proportions rapidly became twenty to one in favor of the Ligurians in the stock, and ten to one in favor of the black bees in the swarm, and so on, until last Saturday, (July 23,) I could not detect a single black bee in the Ligurian stock, and only six Ligurian bees in the swarm, after half an hour's close watching at the entrances in the middle of a fine working day, when the bees were out in great numbers. I may add that the six Ligurians which I saw were almost worn out, their wings being ragged, and their bodies showing that peculiar dark look indicative of old age.

Both stock and swarm are very strong in bees, the latter having filled a super of about 20 lbs. of honey, which I shall shortly take off. What has become of the Ligurian in the one case, and the common bees in the other? It is quite clear that they have all died off, and their places been supplied by young bees; for there is no diminution of numbers, but rather the reverse in both cases. It also follows, of course, that if the Ligurians in the one case, and the black bees in the other, have gradually and visibly died away, their contemporaries in each case, *pari passu*, must have perished too; the result is, therefore, that at all events during the working season the whole hive is renewed within two months.

Another fact is also proved—that the duration of life of the Ligurian and common bee is about the same. Now, it does not follow that the age of the bee is always limited to two months; on the contrary, during the late autumnal and winter months, when little or no hatching of eggs can take place, I expect that the bee may live four or five months, as there is then little or no wear and tear, and their flights are limited to the neighborhood of the hive; but it is quite evident that during the working months the mortality is immense, and only replaced by the great fecundity of the queen bee.

From the little experience which I have had of the Ligurian bee, I should say that the queens of this sort are decidedly more prolific than those of the common bee, as the increase of population in the stocks of the black bee which

*In England, what we call ITALIAN bees, are called Ligurian.—[Ed.]

nave swarmed is not nearly so large as that of my Ligurian stock. The latter also seem to carry into the hive twice the quantity of farina on their legs as compared with the other sort—a sure sign of extensive breeding.

Allow me to add that, as a whole, I consider this season to have been a bad one for honey. Our main resource here is the Limes, which, although well flowered, soon withered, owing to the excessive heat of the direct rays of the sun. The white clover is now their last resource, but it is not so abundant as last year.

—A BLACKHEATH'AN.

For the American Bee Journal.

What Is It?

In stopping with a friend of mine, living in an adjoining county, (Moultrie,) I found a malady which proved fatal to his and his neighbor's bees, and which I never heard or read of before. He said that two years ago, at about the middle of October, his bees were attacked by what he called the "Bee Cholera" for the want of a better name. Out of forty-two stocks he only saved two. All the bees in the neighborhood fared about the same way. All the bees died on the stands in about two days after they were first taken with the disease. The honey stored in the boxes was said to be bitter in taste, and it made those sick who ate it. But, after leaving the honey-stand over winter, it was used the next spring; it was then as good as any honey. One man says the same disease has attacked his bees this fall. Some think the disease is the result of a peculiar honey-dew; but this is only a surmise. Some Pennsylvanians residing in the neighborhood say they saw the same disease prevailing in the mountain regions of their native State. What is this disease, and what are the remedies?

J. B. R. SHERRICK.

DECATUR, ILL., Oct. 23, 1866.

PROF. GERSTÄKER, of Berlin, Prussia, thus describes the Egyptian bee:

"The Egyptian bee (*Apis fasciata* L.) is nearly one-third smaller than the common bee, or the Italian. Her abdomen resembles that of the latter, but her corslet or shield is yellow. The downy hairs of the thorax and abdomen are whitish."

"Her native home," he adds, "is Egypt, Arabia, and Syria; and she is found also, with slight variations, on the northern declivity of the Himalaya mountains, and in China. She was successfully introduced into Germany in 1863 by the Berlin Acclimatization Society, and carried thence to England in the summer of 1864."

THE laying of worker eggs by the queen bee commences usually in February; sometimes as early as January, especially if it be an Italian queen.

DRONES take their flights only in fine weather, during the warmest part of the day.

[From the Bienenzeitung.]

After-swarming.

In most treatises on bee-culture, after-swarming is spoken of as highly disadvantageous, if not positively ruinous, and various modes of preventing it have been proposed. For myself, I have no objection to second swarms, but am pleased to see them, as they enable me to form valuable store stocks, because such swarms have young queens sure to prove prolific for several years. They also enable me to save and reinvigorate queenless stocks, if I happen to have any such, or to build up rapidly some weak colony that has from any cause become reduced. It has frequently been objected that by yielding one or more afterswarms, the parent stock loses much of its store honey and the mass of its population, and is in danger of perishing, having literally "swarmed itself to death." Now this ruin of the stock results either from the loss of the last hatched young queen, or from a deficiency of honey stores. But these are mishaps or disasters to which every other stock in an apiary is exposed, even if it have not swarmed at all. The old queen may perish from age or accident, and the bees may fail to raise another; or if one has been raised, she may be lost on one of her excursions, or may prove to be a drone breeder, so that sooner or later the stock perishes. In like manner, any other colony may, from causes known or unknown, fail to collect adequate supplies for the winter, and die from starvation, if its destitute condition is not seasonably discovered and remedied.

Swarming in general, and not after-swarming alone, may certainly prove to be highly deleterious, as, for example, if it occur when the bees have just begun to build combs in the spring, and have gathered only a small supply of honey, which is frequently the case with what are known as *singing* swarms. The small number of bees remaining in the hive after such swarming are unable to prosecute brooding largely, and at the same time to gather sufficient stores from fields presenting ample but transient pasturage.

Under such circumstances brooding is commonly neglected to some extent, for a while, in an unavailing effort to gather stores; and when it is subsequently recommenced, and the colony increases in numbers, a large part of their surplus has been consumed, and liberal feeding is required to fit them to survive the winter, unless they be among the fortunate few that have the advantage of late fall pasturage. But when one of my stocks has gathered plentifully from the early spring pasturage, and has become so heavy that it may scarce be lifted, I am well content to have it yield one or two afterswarms. The parent stock will still have bees and brood enough, and if the young queen is not so unfortunate as to be lost, she will ere autumn have produced such a mass of workers that the hive will certainly be among the most populous in the apiary next spring. When afterswarms leave, all the brood in the parent hive is already capped, needs no further attention from the workers, and will not therefore perish from neglect. As soon as the young queen becomes

fertile, brooding will again be vigorously prosecuted, and the mass of the population will thus be composed of young bees which are constitutionally best qualified to endure the rigors of winter. If the stock be deficient in supplies, it should be fed, while brooding, with starch-syrup or some other cheap substitute for honey, which will then be used for the nourishment of the brood, leaving that of better quality in store for their support in the winter.

Afterswarms having young queens which usually prove very prolific, are well fitted to become the best store stocks next season. To stimulate and aid them, I furnish them with as much clean empty combs as I can—preferring, on that account, to put my early first swarms in empty hives. In very warm weather, afterswarms are apt to desert hives containing much comb, wherefore I confine them after hiving, with sufficient ventilation, and set them in a cool place till evening. If the queen has been captured, I place her in a cage as an additional guarantee that the swarm shall not forsake its assigned quarters; and, to make assurance doubly sure, I insert a piece of brood comb in the hive before placing it on its stand in the apiary. By selecting a brood comb containing both eggs and young larvæ, the possible loss of the young queen will be rendered less damaging than it otherwise would prove to be, because queen-cells would be immediately started, and all the energies of the population be devoted to honey-gathering, as there would be little brood to nurse, and no combs to be built.

Afterswarms, and the parent stock from which they came, must be carefully watched to see whether the young queens have not been lost. In the case of the parent stock it is oft-times very difficult to ascertain the fact, because the workers, now accustomed to be without a queen, scarcely manifest any consciousness that their newly-hatched sovereign has failed to return. It is hence prudent to insert a piece of suitable brood comb in every suspected stock, that those really in want may have an opportunity and the means to supply their loss. If queen cells be started, we have conclusive evidence of their destitute condition. We may then either permit them to rear a queen, or introduce a fertile one from a nucleus, if we have such. The clear "silken sound" of the bees' wing as they leave; the rapidity of their departure in hot haste for forage; the large supplies of pollen they carry in, and the size and well-rounded proportions of the pellets, as well as the general deportment of the population, clearly indicate to an expert the presence of a fertile queen. But when a colony has been queenless for some time, and especially after a fertile worker has commenced laying drone eggs, indications are oft-times fallacious, and we may easily be deceived, even if brood comb be inserted, for queen cells will seldom be started when there are no young bees in the hive.

If afterswarms come late and are not strong, it is not wise to hive them separately, as they may not be able to collect stores enough for the winter, even though furnished with empty combs. It is better to unite them with some

other stock; and almost any one will be benefited by such reinforcement. The young queens may be preserved in nuclei, and used to great advantage in cases of queenlessness, or as substitutes for feeble old queens.

Occasionally a strong stock which has yielded a natural swarm, or from which a forced swarm has been drummed out, fails to produce an afterswarm, though still exceedingly populous; an occurrence I much dislike. Brooding will then be prosecuted with great energy in such a stock, the young queen being very prolific; and as with us pasturage ceases to abound after the grain crops are harvested, an enormous consumption of honey follows, without any opportunity to replenish the combs. The result is, colonies very populous in the fall, but ill-provided for the coming winter. To prevent this, I drain off a portion of the superabundant population as early as practicable, by transposing the hive with one much weaker; or, if I have none such, I take a fertile reserve queen with her nucleus colony, place them in a hive resembling that of the stock I design to tap, insert empty combs enough to furnish the interior well, then remove the strong stock to a distance, and set the prepared hive in its stead. The returning bees having been queenless for some time, or accustomed to the presence of an infertile one, or of queen cells only, will readily accept the fertile queen now introduced, so that I never find it necessary to confine her even temporarily. The bees thus transferred from the parent stock labor with surprising energy, as though resolved to turn the remainder of the season to the best possible account. Though the parent stock, removed to a new stand, may have lost a large proportion, if not the most of its honey-gathering force, it will still retain enough to re-establish itself; and the young bees, hitherto mainly employed in nursing brood, now to a large extent relieved from that duty, will speedily join the corps of active outdoor laborers, there being no more uncapped brood in the hive requiring their presence on the combs. If the young queen is not lost on her wedding excursion, the population will soon be recuperated, and in a few weeks it could hardly be seen that the hive had contributed so largely to the establishing of another colony. It may, indeed, in the fall surpass in strength colonies which failed to swarm, and possess this further decided advantage that it consists almost exclusively of young bees.

The sum of the matter is that afterswarming, or what amounts to the same—the withdrawing of the surplus force of a strong stock, is by no means an evil, and may, indeed, be decidedly beneficial in districts supplying no late fall pasturage, as it removes from an overpopulous stock a large body of consumers, and converts them into active producers, on another stage, indeed, but still for the advantage of their common owner.

O. ROTHE.

BEES are, without exception, the most industrious of all insects in the world. They are a treasure to those who know how to properly manage them.

For the American Bee Journal.

The Fox and the Bees;

OR,

An Old Man's Reason for Hating Bees.

More than fourteen years ago, while engaged in conversation with a friend at the table of a public house, upon our favorite topic, "the bees," I noticed an old man, who listened to us with fixed attention. Taking advantage of a break in our conversation, he said, in a very decided manner: "You seem to be great admirers of bees, but *I hate them*, and if you will hear my bee story, you will see that I have good reason for such feelings."

"Many years ago, when I was a lad in my teens, I had a tame fox which was left chained to a hollow log, in my father's garden. It was an amusing sight to see how fond this fox was of killing bees; few that came within his reach making good their escape. One Saturday a number of my playmates came to spend the afternoon with me, and among us the idea was suggested that we might get some rare fun out of Reynard and the bees. No sooner thought than done. By our united efforts we moved the log much nearer to a large row of bee-hives, and with true boyish zest enjoyed the slaughter of the innocent bees. Fox, for a while, seemed to be in all his glory, and the more he killed, the louder we laughed; nor was our enjoyment at all diminished by his curious antics as every now and then a bee made an effective lodgement upon his hairy hide; but the bees, beginning very soon to resent such liberties, attacked in increasing numbers their wanton destroyer, and it was evident that he was not only getting the worst of the fight, but that if I did not interfere there would soon be a dead fox on the field of battle. Approaching the log to unchain and remove him, the bees sallied from their hives as it seemed in countless thousands. A scene speedily ensued more easily imagined than described. My companions fled with what speed they could to the house for protection, the bees attacking and stinging them not quite to their heart's content before they could make good their retreat. Seizing my fox I made for the nearest water, into which I dropped him all covered and blackened with bees. Finding that nothing further could be done to save my poor pet, I left him in the agonies of death to attend to my own safety, for the bees by this time were covering my person and stinging me so furiously that I was almost frantic with fear and pain. By the time I reached the house the air was filled with them, and as I opened the door I carried in a new reinforcement, who began to sting more thoroughly my companions and all the members of the family. We were now compelled to retreat to the cellar and abandon the upper works to the enemy, who by this time had fairly darkened the windows with black clouds, furiously seeking ad-

mission. The poultry and domestic animals were savagely attacked, and some of them died from the effects of their stings, while the unfortunate owner of the dead fox lay upon his bed for more than three months, barely escaping with his life.

"Now, after hearing my bee story, can you wonder that I perfectly hate bees; and all the more as from the time of that unfortunate experiment I have never been able to approach a hive without being attacked or stung by them."

When the laughter, caused by both the matter and manner of the old man had somewhat subsided, my friend and myself freely acquitted him of any unnecessary uncharitableness for saying "*I hate bees*."

L. L. L.

[From the Prairie Farmer.]

Bees! Bees! Now is the Time.

Eds. Prairie Farmer: If your readers will go now into the fields and gather the dried tops and seed bulbs of old mullein stalks, they will see that each one of them at a little distance, when inverted, looks almost exactly like a long, round cluster of bees. Now, if they will lay them carefully away in a cool, dry place, and next summer, when their bees are swarming, have ready three or four of the stalks tied together on the top of a long pole, and when the swarm is all out, before they begin to light elsewhere, run this decoy up among them as they fly, and they will all pitch toward it and light on it at once, thinking that it really is a cluster of bees and a part of their swarm. If they will pop it up among a swarm determined to go off or on their flight overhead, it will in like manner deceive them, and they can in either case then be swarmed with all ease.

This pole or decoy should be usually kept out of sight at all times except when in use, lest it should lose its effect from becoming too well known. Pieces of the same, however, laid round in the branches of the trees, where it would be convenient for them to light, will usually determine them to light there rather than on any other part of the same tree, or any one very near to it. Try it.

J. B. TURNER.

The Queen's Retreat.

According to the observations of an old and skilful bee-keeper residing near me, the queen bee commonly retreats into the super of a hive, when the workers begin to disport of an afternoon in front of the hive, seemingly to escape from the tumult in the interior. He states that he regularly found her there on such occasions. If this be so, she could readily be caught, even in a cottage hive, by providing it in season with a super fitted with combs removable.

SEMLITSCHE.

[From the Bienenzeitung]

Bee-culture in Movable Comb Hives.

It is undoubtedly true that movable comb hives are preferable to those in which the combs are a fixture. They not only furnish the bee-keeper with greater facilities for observing the habits and proceedings of bees in the interior of their dwellings, but they also enable him to secure greater material advantages. Hence, if there be still instances—and such, alas! are only too numerous—where movable comb hives are less productive than the old-fashioned kind, the cause is to be found solely and wholly in improper management.

Of course, we can here indicate in general terms only, in what the proper management of such hives consists. Discussion in detail would embrace the entire subject of practical bee-culture with movable combs, and transcend the bounds of an essay. It would require a volume to do it justice; and we must therefore content ourselves with general hints and suggestions, and these must have reference specially to the local conditions and circumstances under which our own experience was acquired. In other localities, and under different circumstances, considerable deviations and modifications would probably be necessary, though the fundamental principle remain essentially the same.

I contemplate, in my apiary, two classes of colonies:—

1. Such as are designed and treated for the production of honey.
2. Such as are designed for the multiplication of stock.

For convenience I shall subdivide my observations into six sections or periods, and commence with—

1. *Preparation for wintering.*

For honey producers in the ensuing year I select the colonies having the older queens; reserving those with younger queens for the formation of artificial colonies and nuclei, or the production of natural swarms. Both kinds must be populous and richly supplied with honey and pollen. Each colony should have from twenty to thirty pounds of honey, to be secure in any probable emergency. If the hive have two tiers of combs or frames like most of those of Dzierzon and Berlepsch, the full combs or frames are to be placed in the upper tier, and the empty ones, and those only partially filled, in the lower. In colonies designed for honey producers no drone combs must be admitted, or if circumstances render their introduction unavoidable in the fall, they must, without fail, be removed early in spring, before brooding commences. But in colonies intended for the multiplication of stock, it is advantageous to insert a few drone combs even in the winter-seat of the bees, to secure the seasonable production of drones, so that artificial colonies may be formed early. The winter-seat of each should be as circumscribed as practicable, and separated from the empty part of the hive by means of a divider well adjusted and fitting closely.

Under the head of preparation we may appropriately advert to the union of colonies, for which purpose we no longer employ either puffball or any other anæsthetic. The process adopted by us is as follows: We remove the queen from the hive intended to be united to another, taking away at the same time the best filled honey combs it contains. At evening, or on the following day, but invariably towards evening, we open the hive, and transfer from it to the hive or hives intended to be strengthened, comb after comb with the bees adhering to each, first placing a divider with a suitable passage between the combs in the hive, and those we are transferring. The few scattering bees, if any, remaining in the deprived hive, are gently brushed out and given to their late companions, and the entrance to their emptied hive closed. Very few bees will be lost by this process, and it is unattended with danger to the queen of the strengthened colony.

2. *Wintering.*

It is still an open question which is preferable on the whole—wintering bees on their summer stands, or placing them in a clamp or in a cellar, or in some other convenient repository. For our part, we prefer leaving them in the open air. Though we have tried other modes, we regard this as the most advantageous if properly effected, not only because attended with least trouble, but because the bees are thereby less disturbed, and have the opportunity of embracing any casual change of weather to disencumber themselves of fecal accumulations. Hives, on their summer stands, can be protected from excessive cold with less trouble than the removal of a large apiary involves, and at less cost than the construction of a clamp or the erection of a suitable building would require; and few bee-keepers have at their disposal a cellar large enough and otherwise adapted to accommodate an extensive apiary.

3. *Preparation for spring.*

On our system of fall and winter management, matters proceed so regularly and consecutively, that the needed preparation for spring is very simple, indeed. On the first mild day when the bees fly, I scrutinize their deportment very closely, and readily ascertain if any colony is queenless. Such as manifest symptoms of queenlessness are at once opened and examined, and, if found destitute, immediately united in the manner already described with some other colony. When the weather is sufficiently warm, every hive is to be opened, and all the droppings and dead bees removed; but at other times leave them entirely undisturbed. At this period, especially when brooding has been begun, bees frequently suffer from want of water, much of which is required in the preparation of food for their young, while the coldness of the weather prevents them from going in quest of it. A loud humming within the hive usually indicates their destitution, and ceases as soon as they are supplied with water, which may be given to them in a comb inserted near the cluster, or by gently sprinkling it on the tops of the bars or frames after temporarily removing the honey-board. All this,

should be done with as as little noise or disturbances as possible.

4. *Management from spring to fall pasturage.*

The first requisite alike in honey producing and stock increasing colonies is to promote brooding; and this we do by resorting-to stimulative feeding. If extensive brooding has already drawn heavily on the stores of the hive, and these are still rapidly diminishing, we furnish them first, if possible, of all, with additional supplies of honey in the comb, selecting such comb, if any, which have large intermixture of pollen, and in default of the latter we supply them with unbolted rye-meal.

With the increase of brood, as the weather grows warmer, enlargement of the room for the accommodation of the colony becomes necessary, especially in the case of those designed for honey producers. If this enlargement be effected at the proper time, the disposition to swarm will not be likely to arise. But in the case of colonies intended for the multiplication of stock, enlargement must take place at a much later period, if, indeed, it be required at all. To the former, empty worker combs should be given when the room is enlarged, and again at the opening of spring pasturage. And if the colony has become so populous that access to the surplus honey receptacles must be given, we supply these also with empty combs, using drone combs by preference, if we have any. The multiplying colonies we treat differently. When enlarging their brooding space, we seldom give them entire combs, unless we have some fine and fresh, preferring to give them frames furnished with strips of guide combs only. These will be speedily extended and supplied with eggs. Additional comb is, of course, not to be introduced in any case till the bees are sufficiently numerous to be able to cover them completely.

5. *Management during full pasturage.*

When this period arrives, we change our treatment of the honey-producing colonies, so as to give them, besides entire empty combs, some frames also, with rudimental guide pieces, and indulge their comb-building propensity with full latitude. If they build drone comb, and the queen supplies them with eggs, we at once transfer them to the surplus honey receptacles, where the eggs and larvæ will be quickly dislodged by the workers, and the cells filled with honey.

If the multiplying colonies have been previously properly managed, they will be in a condition to bear division at the time when full pasturage opens. But how is this to be known? We may, indeed, describe it pretty accurately, but still it requires practice and experience to endow the bee-keeper with prompt decisive judgment. The chief indications are these: The colony must be populous and contain an abundance of brood; and the drone brood must be so far matured at least that some individuals are ready to emerge.

To describe in detail the various processes adopted or recommended for the formation of artificial colonies, would be a wearisome task, uncalled for at this season. We content our-

selves with observing that whether the colony be formed with or without a queen, care must invariably be taken that the parent stock as well as the young colony possesses, as regards both bees and stores, the requisite means of securing its further development and ultimate prosperity. This is equally essential also in the case of later colonies formed perhaps ten days after from some of the honey-producing stocks. If, under peculiar circumstances, or from special causes, it be impracticable to commence forming artificial colonies at the opening of full pasturage, it must still be done, if to be done at all, before the culminating period of the gathering season has arrived; and similar precautions are to be used as those already described. Colonies which are rearing young queens are to be carefully watched fourteen days after they were formed, to ascertain whether the queen has become fertile. If this is not the case, or the queen has been lost, the colony must be supplied with another, or supplied with the means of raising one as soon as possible.

At the height of the gathering season we make another change in our treatment of the honey-producing colonies. In favorable years, with abundant pasturage, the honey stocks will naturally restrict brooding soon after the culminating point of the gathering season is reached, for the cells are mostly filled with honey, few remaining in which the queen can deposit eggs. But should this not be so, especially in unfavorable years, then repression of brooding must be effected by artificial means, as being indispensably required. We recommend, as the best means of effecting this, the formation of small nuclei, by transferring from the honey stock to a small hive, one or more brood combs, together with the queen.

6. *Management at the close of full pasturage.*

In good honey-yielding years this is an easy matter. The multiplying stocks and the artificial colonies will have procured their supplies for the winter, and may, moreover, have somewhat to spare, and the honey stocks yield an ample harvest.

In unfavorable years we have to apportion the supply of honey on hand, the surplus stores namely of the honey-producing stocks, among the two other classes—the multiplying stocks and the artificial colonies—if the apiary is to remain enlarged. But if this is not the case—if the apiary already contains the normal number of stocks of which we design it shall consist, some will have to be broken up, and there will thus remain a surplus which may be appropriated; and the point is, how to do this judiciously. The younger and more fertile queens of the colonies to be broken up are given to those intended to be multiplying stocks in the ensuing year, and the bees are in like manner distributed among them as directed in the first section. This leaves the honey and combs for our own use.

We will now describe our present mode of introducing queens:

We remove the queen of the colony to which one is to be given, and eight or ten days afterwards destroy all the queen cells, and immediately give them the queen, unless we perceive

uneasiness or commotion among the bees. In such case we confine her in a cage, insert this between two crowded combs, and observe how the bees deport themselves. If they appear kindly disposed, we liberate her at once, and generally find her acknowledged as their head. We have often introduced queens in this manner without losing any.

Whoever manages his movable comb hives in this way, adapting his artificial processes to the nature and instincts of the bees; is not incessantly trying experiments; does not perpetually disturb and annoy them; will, besides enjoying the pleasures and gratification afforded by his pursuit, not find himself altogether without pecuniary remuneration, even in unfavorable years. Bee-culture, as a source of profit and a subject of study, will be to him a delight and a blessing.

RADLOW.

Honey Ant of Texas.

A Texas paper of a late date, speaking of the honey ant, says:

"We have often heard of the 'honey ant' of Texas, but the account seeming so romantic, we have heretofore been hardly able to credit it, but as we now have a specimen before us, furnished by our friend Leo Smith, of this city, we can no longer have any doubts on the subject. These ants are a medium size between the large and small red ants, and are of a reddish and brown color. Appended to the rear of each one is a transparent sack or globe filled with pure, clear honey of a most delicious flavor. These sacks vary in size on different ants—ranging between the size of a buckshot and a navy pistol-ball. On this sack, at short intervals, are attached thin layers about the length and width of half a grain of rice, and of a dark color, evidently to strengthen it and keep it in shape. These interesting animals, when they crawl, draw their delicious load after them, and if the sack is empty, they set themselves to work to replenish it again. Whether they deposit this honey in their great general reservoir among the rocks, to draw from it as occasion may require, or hold and use it as individual property, we are not informed. Here is a curiosity that we believe has heretofore escaped the eyes and pens of our celebrated naturalists."

WHEN a bee on a foraging expedition has completed her lading, she returns to her hive to dispose of it. The honey is disgorged into the cells by the alternate contraction or dilation of the honey-bag. The pollen is deposited in separate cells, and is sometimes covered with a layer of honey.

BEEs can bear cold, however intense, if they have food and are kept dry.

WARM winters make sad havoc among poor stocks of bees, and rich ones have sometimes nearly empty combs with which to begin their spring labors.

For the American Bee Journal.

Patent or Latent?

In the September number of the *Bee Gazette*, Mr. W. A. Flanders, of Shelby, Ohio, claimed to have patented a process for rearing and preserving queen bees.

In the October number of the *Gazette* I endeavored to show—first, that he had not patented any such process; second, that the Patent Office, as shown by their records, directly refused to patent said process in his application, under which the letters patent for 1864 were issued; and third, that the process with all its details was taken, with very slight and unessential variations, from the first, second, and third editions of my work on the Honey Bee.

In a secret circular which Mr. Flanders is selling to the bee-keeping public, and which has come into my hands under circumstances that fully justify me in furnishing it to the readers of your Journal, it will be seen that Mr. Flanders claims, under the same patent of 1864, to have patented another process.

I give the circular, *verbatim et literatim*:

"TO CAPTURE WILD BEES

WITHOUT CUTTING THE TREE OR FINDING IT.

Patented April 5, 1864, by W. A. Flanders.

Take an empty hive and bore a five-eighths inch hole through its side, and introduce a tin tube which fills the hole, and long enough to reach into the centre of the hive. Now drop three or four drops of W. A. Flanders' "Bee Charm" into the hive. (This Charm* is compounded and prepared from the extract of Queen Bees, Fenugreek, and anise. Price 50 cents per bottle. Sent by mail postpaid.) Then bore an inch hole opposite the tube's end, so that when the hole is covered with glass the light will shine through this tube.

Now take a box with a hinged cover (smaller than the hive) with one side wanting, and bore a five-eighths inch hole into this box, and place the open side of it to the hive's side, where the tube is put into the hive. Now lift the cover to this box, and set into it a plate of sugar-water—honey is better. The box should fit the hive's side so as to exclude the light, &c., having another tube, like the one in the hive, with the curtain over the end, so fixed as to exclude the light, but admit the bees, &c. The hive is to be closed and ventilated. A piece of brood comb can be put into it before the bees are introduced—for the captured bees to raise a queen, or a queen may be given them afterward.

OPERATION.

Being near where we suppose the tree is situated, we catch a bee (from a flower) in the curtained tube, and run it into the feed-box, (through the hole,) and after the bee has had time to fill itself, withdraw the tube. The bee will soon go home loaded, and return with its companions for more feed. In a short time the

* A humorous correspondent suggests that a few drops of the bee-charm rubbed on the right elbow, might prevent bees from stinging you on the left heel.

whole swarm will be at work, carrying off the feed. Now put the tube through the whole into the box, and let it remain. The bees go through the tube as they did the hole before the tube was put into it; and as the curtain over its ends prevents the light from shining into the feed-box, and as the light shines through the glass and tube in the hive into the feed-box, the bees pass into the hive and hive themselves of course.

Now, if you suspect that they belong to your neighbor's hives, you can easily satisfy yourself by carrying the hive near by, and if a few bees, which you will let out, pass to your neighbor's hives and enter, you will let the swarm go, of course, to the hives. You can try them at your hives, and ascertain if they are your bees, and if they are, operate as you like. Confine them four days with brood comb or queen, and give them water and feed, and they will go to work when let out in the evening of the fourth day, even if they were "disloyal robbers" belonging to several hives of your own.

SWARMING.

On a warm day at one o'clock, afternoon, move the hive which you wish to obtain a swarm from a rod or more from its stand, and set the decoy hive in its old place. Arrange the decoy hive for capturing the bees, and let the column on to the feed, and, after a few moments, put in the tube, and you will capture and hive them as before. Give them a queen or brood comb, and let them have their liberty.

HANDLING BEES.

Rub a few drops of W. A. Flanders' "Bee Charm" on the hands and lips, and blow the breath among the bees.

REMOVING HONEY.

To take honey from your bees, prepare as above for handling bees, also feed them freely with sweetened water, in which a few drops of Charm is incorporated, and they are quiet.

All parties who get these instructions are bound by their honor and a forfeiture of one hundred dollars, not to give publicity to the above, they having signed an agreement to that effect.

PROF. W. A. FLANDERS,
Shelby, Ohio."

I propose to show in this number of your Journal—first, that Mr. Flanders has patented no such process; and, second, that no person can patent a secret process. In the specification of his patent for 1864, Mr. Flanders describes the peculiar arrangement of the hive by which he captures wild bees; and his claim, which I give, shows that he has patented not the process, but his mechanical devices for carrying it out:

[From the Patent Office Report for 1864.]

"No. 42,181.—W. A. FLANDERS, Shelby, Ohio.—*Bee-hive*.—April 5, 1864.—In this hive the comb frames are hinged to the doors of a centrally divided hive by means of extension hinges in such a manner that when the parts of the hive are separated by opening on the hinges the frames of either half thereof may be thrown out together by the opening of the door to which they are hinged. The joints of the hive

are made like the ordinary rule or table joint, in order to prevent the crushing of the bees.

Claim.—First, in combination with a dividing hive, constructed substantially as specified, bringing the comb frames by means of the extension hinge E F to the back or front walls, so that in opening the hive the comb-frames are brought out of the hive in the manner and for the purpose set forth.

Second, so hinging the back or front of a hive, and so attaching the comb frames thereto, that on opening the hive all the frames attached to one section may be swung out of the hive together, as and for the purpose specified.

Third, in combination the curtained tube J, the division board H, tube H', and glass H'', operating as described for the purpose specified.

Fourth, the queen and drone cages when constructed and operated as specified.

Fifth, the disk K, with the openings 1, 2, 3, and 4, in combination with the openings L, arranged and operating as and for the purpose set forth.

Sixth, forming the joints of any position of the bee-hive that opens and shuts, so that the angles and edges of the parts forming the joint or joints will not separate upon opening the hive, or impinge upon each other when the parts are being closed, substantially as specified for the purpose set forth."

In his secret circular, given above, it will be seen that Mr. Flanders makes no allusion to the peculiar arrangement of his own hive for capturing wild bees, but gives such directions as would enable any skillful bee-keeper to practice, with any kind of hive, what he calls his patent process.

Mr. Flanders seems to have forgotten the leading object of the Patent Office, which is, to induce inventors to make known their inventions for the public good, and not by throwing around them the protection of a monopoly, to aid them in keeping secret their valuable discoveries or improvements.

Patent is derived from the Latin word *patere*—to make public; to make known; but Mr. Flanders seems to have confounded it with *Latent*, from *latere*—to keep secret; to conceal; and instead of acting under the broad seal of the Patent Office, he ought to have obtained his Professorship from some Latent Office, whose authority is unrecognized anywhere outside of his "Bee-keepers' Institute."

L. L. LANGSTROTH.

OXFORD, OHIO.

HONEY is never found in the second stomach of the bee, but only in the first. The latter contains only the Myme, being the digested or partially digested food, which passes into the intestines, and the final excreta there show that the food consists mainly of pollen or bee-bread.

In the months of April and May the bees collect pollen from morning to evening, but in the warmer months, the great gathering of it is from early dawn to about ten o'clock.

THE AMERICAN BEE JOURNAL.

WASHINGTON, DECEMBER, 1866.

THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) and all communications should be addressed to the Editor, at that place.

Alsike Clover.

We claim credit for having first brought to notice, in this country, the Italian bee and the Swedish, or Alsike Clover, and urged the introduction of each as likely to prove a valuable acquisition. The superiority of the Italian bee is now universally conceded, and it is already very generally diffused in every section of the country. We have no doubt the Swedish clover, when once properly tested, will likewise rapidly win its way to public favor. Of course, we do not mean that just anything sold or sown under that name will commend itself to the observant farmer, any more than everything sold under the name of an Italian bee is sure to be more valuable than the common kind. Be certain you have the genuine alsike clover seed, and you may confidently look for satisfactory results from the cultivation of it, provided the soil you till is suited to the plant. Whether it is equally satisfied with every kind of soil, or on what kind it will best thrive, is not yet ascertained here, but this we know, from our own experience, that on limed slate land, where the abundance of small stones still remaining on the surface, prevents close mowing, an acre of growing alsike is worth more for hay than three acres of red clover on similar ground, and is greatly superior to it in quality as feed for cows. Objection has been made to this clover as not producing a second crop the same season. But why should it, when its first crop is worth more twice over, for hay and seed, than both crops together of the red clover? The seed is obtained from the first crop; and the haulm, after the threshing, will be preferred by cows to any red clover hay we ever saw, and the milk-pail will show that it does them somewhat more good. *Ceteris paribus*, we should suppose the cows and the dairy-maid to be rather the better judges of quality. The hay and the seed are obtained at one mowing; and the latter can be threshed out by the farmer on his own barn-floor. No hawling rowan miles to a mill, and then hawling the seed "bock agin" after being cleaned and tolled, besides leaving the offal to augment the miller's manure heap! Then, the

fall pasturage furnished by the alsike till the middle of November, in the Middle States, is far beyond anything in that line to be got from red clover. Moreover, a clover is wanted that will ripen concurrently with timothy, and the cutting of which need not be hurriedly forced; which will not become slimy and semi-putrescent for six inches above the root, if allowed to get a little over-ripe before mowing; which will retain its leaves before and after it is put in the mow, without any extra-scientific process of curing; and which, above all, will not be thrown out, root and branch, by frost in an open winter. Such a clover is wanted by the farmer for his ordinary purposes; and the bee-keeper wants the farmer to have just such a clover as, besides possessing all these good properties, shall furnish to the bees a pasturage as abundant in quantity, as choice in quality, and as protracted in duration, as that which the neglected common white clover yields where (sorry it should be so stigmatized) slovenly farming permits it to "come in." Such a clover, we are persuaded, the alsike will be found to be, not, perhaps, on all soils, but on a sufficient variety of them to make it generally available in a country so extensive and diversified as ours.

The following account of the experience of the Shaker family, near Albany, New York, in the cultivation of this species of clover, was furnished to the "*Country Gentleman*," by Mr. Chauncey Miller, a member of that family, and will particularly interest bee-keepers:

"We find the Alsike Clover a very superior grass in the following points:

1. For its value as a hay crop, on a great variety of soils, being of a growth, in height, varying according to quality of soil, from ten inches to two-and-a-half feet, and yielding from one-and-a-half to three tons per acre, according to soil; thus comparing with our best red clovers, though, of course, not so high as the great Western pea vine clover, but, with us, one-third higher than the small Southern red clover.

2. For fineness of stalk or haulm.

3. For its multitude of sweet flowers, blooming, perhaps, three or four times as much as red clover, making, when in bloom, literally a "sea of flowers."

4. Its adaptation to heavy soils, clays, or heavy clay loams, as well as sandy soils, not being so liable to heave out by frosts in winter and spring as red clover, on account of the root being more fibrous, partaking somewhat of the character of the white clover, (*trifolium repens*), being the product of a cross between the red and white clovers, originated in Germany.*

*This, we think, is a mistake, originating probably in the botanical misnomer, *trifolium hybridum*, which the super-scientific folks have applied to it. The agricultural papers of Germany call it a distinct species, and it is now regarded to be such, as fully as the red clover or the white.—[Ed. B. J.]

5. To all farmers who keep bees largely, the crop would be of great value, as bees can work upon the flowers equally as well as upon white clover, as they are about the same size, and precisely the same habit, as the latter, but are much more abundant in honey; bees appear as fond of the flowers as of mignonette, and, in its season of flowering, which lasts about six weeks, are continually upon it, from dewy morn until dusky eve.

6. To those farmers raising clover seed for market, the Alsike Clover, in our opinion, would be of great value, as it seeds enormously, and the seed threshes easily, by flail or machine, leaving a beautiful quality of hay, the stalks retaining their greenness, when most of the seed is quite ripe.

7. It holds many weeks in bloom, thus giving the farmer lee-way of time and weather, in regard to securing the crop.

In the past three years we have spent about sixty dollars for Alsike Clover seed to sow upon our lands; we have tried it upon a variety of soils. We like it so well, that should all circumstances favor the enterprise, we think of seeding, next spring, in considerable quantity to this grass, and, if practicable, it is possible we may import pure seed from Germany for that purpose, not raising enough of our own seed to sow; as we find, on trial, that much of the seed of this plant, which has been imported into this country, other than through the Patent Office Department, has been largely adulterated with other clovers, daisy, &c., &c., either before or after entering this country; possibly we may not be able to obtain it pure, even in Germany, but we hope to do so. We mention this incidentally, as much futile inquiry has been made by farmers, apiarians, and seedsmen, where pure seed could be obtained, and we fear it is to be obtained only in Germany. A party in Vermont has affected to distribute much Alsike Clover seed to apiarians within the past three years, five dollars worth of which we tried, and found it did not contain one-thousandth part of Alsike clover seed, but was quite pure white clover seed.

Again, we would say to farmers that we have found it to be necessary, in order to be sure of seed, to order it in the fall, or early winter, as the demand is generally such that it is all sold off before sowing time in the spring. If we are successful in sowing in larger quantity, we will again report, and we propose to try it on a greater variety of soils."

M. EMILE DUCHEMIR states, in a communication to the Paris Academy of Sciences, that he has discovered a new parasite of the honey bee. It is a microscopic mite which is found on the common sunflower, attaches itself to the body of the bee, and finally kills it. We are not aware that it has yet been observed in this country.

SCHILLER, the celebrated German poet, was a great admirer of bees.

Foulbrood.

Mr. Eugster, of Constance, communicates the following to the editor of the Baden Journal for Bees and Bee-culture:

"You request me to give you my experience of foulbrood. I will do so fully next fall or winter, and meantime say only that for four weeks past I have not found a trace of foulbrood in my apiary, now numbering more than fifty stocks, and that during the last six years I have carefully studied this pestilential malady, having in that period had more than forty diseased stocks, not one of which were destroyed by me, but all were preserved for observation and experiment. I have even fed healthy stocks with honey taken from colonies suffering from the disease in its worst form. In short, I used all conceivable means to ascertain how the disease is diffused, and to discover some effectual cure. At the beginning of last March I still had five infected colonies, and now these are healthy and populous, not the slightest symptom of disease being perceptible; and all the rest of my stocks have remained unaffected. If there is no return of the evil this fall, I will send you a narrative of my experiences."

The editor proceeds to remark: "Thus it seems that this dreadful and devastating malady is about to be stripped of its terrors, and a large number of worthy bee-keepers relieved from what seemed a never-ending struggle. We fought it for years in our apiary at O., and now dread it no longer. But we subdued it only by resorting to extreme radical means. As soon as we observed traces of the disease in a colony, we contracted the entrance, used the queen for forming an artificial colony; and if the stock was still populous, we permitted it to raise another queen, which was likewise removed as soon as she became fertile, and then applied the brimstone. After the bees, brood, combs, and honey were removed and destroyed, the hive was thoroughly washed with a solution of chloride of lime, as recommended in the *Bienenzeitung* No. 5, for 1864, and it could then be used again without risk of communicating the malady. The cure proposed by the Rev. Mr. Schieberle has been tested at Pforzheim, and its efficacy seems to be no longer doubtful. But how is a knowledge of such processes and remedies to be communicated to the mass of common bee-keepers in districts where foulbrood prevails? Apiarian Conventions rarely meet; of Bee-keepers' Clubs and Associations few exist, and Bee Journals are seldom read by that class precisely to whom they would be most useful. That's the misery!"

L. HUBER.

JULY, 1866.

From an advertisement in this number of the BEE JOURNAL, it will be seen that the Egyptian bee has already been brought to this country by the enterprise of the Rev. Mr. Langstroth. It is in good hands, and a short time will now suffice to test its value.

[From the Bienenzeitung.]

Enemies of Bees.

Every bee-book you open contains a chapter on the enemies of bees, carefully enumerating them, and describing their modes of attack so minutely, that the young apiarian is horrified continually with apprehensions for the fate of his little favorites, surrounded perpetually, as they would seem to be, with scores of alert and active foes. In a recent treatise on bees, I have found a list of thirty-seven of these, and yet the writer omitted to mention the chief of them all—the very corypheus of destructiveness—the ignorance of man, which probably does more harm, ruining more colonies, and annihilating more bees, than all the other hostile powers combined. That, in defiance of all these adverse surroundings, bees are still found in the land of the living; that the entire race has not long since been consigned to the realms of paleontology, is indeed a perfect marvel, and forces on us the conviction that for the preservation of this interesting and invaluable insect special arrangements are made in the economy of nature, and that its survival is then the necessary result of assigned causes. Were it otherwise, the whole tribe must, even in the years before the flood, have been exterminated, and occasional specimens only would now be found by archæologists among the fossiliferous strata of the earth. Yet with all the research and care of entomological census-takers, and the most strenuous efforts, to complete their catalogues of bee-devouring and hive-devastating miscreants, I still miss one from the list, and, in my judgment, the greatest of all. Bee-keepers, concerned for the welfare of their favorites, will be alarmed when they hear another foe announced as in waiting to pray on their apiaries. But the truth must be told, and I am resolved not to be mealy-mouthed about it. The innocent need not take offence; but let her, whom the cap fits, wear it. The very special and most dangerous enemy of the bee—faint not, ladies!—is the good wife herself of the confiding bee-keeper. I state the fact deprecatingly, lest some half dozen fair hands pull my wig in displeasure, or my own better half put ipecac in my coffee. The hundreds of colonies which perished last spring, within a circuit of five miles radius in my own neighborhood alone, could they be placed or replaced on the stand, would doubtless name this foe as among the chief causes of their melancholy demise. But that I be not misapprehended, let me give specifications.

There are now in the land a very respectable number of intelligent bee-keepers, whose anxious desire is to give a still more extensive diffusion to their favorite pursuit by enlisting others to engage in it *con amore*. New converts are thus frequently made, and these start fair with a few good stocks and encouraging prospects of ultimate success. Still more elated, and buoyant with hope, (bee-keepers are rarely bachelors,) is the wife of the incipient apiarian. Stocks have been purchased, a bee-house—perhaps a bee-palace—has been built, the bees have been busy, and consequently there should

be a store of honey on hand; if not in the first year, still in the second. If not, why has the money been so fruitlessly spent? "We have now six hives, and among them several heavy ones. Brimstone the two heaviest, dear husband, and let us enjoy the investment." In vain does the good man protest that the apiary could not be kept in a thriving condition if the best stocks be thus sacrificed; and that these precisely must be retained if permanent success in the business is to be assured. Remonstrance is useless. Importunity becomes more urgent, and begins to be somewhat declamatory. The compliant husband yields, and with a heavy heart and a rueful countenance, the two best and heaviest stocks in the little apiary are set over the brimstone pit, and the brief career of the busy workers terminates amid suffocating fumes. "Ah! how delicious is your honey, husband! Really, 'tis worth while keeping bees; they take up so little room, and more than pay their way as they go!"

A short time passes. The honey-jar is not found to be as inexhaustible as the oil cruse of the widow of Sareptum, and the children, like Oliver Twist, cry for "more." "Mamma, can't you give us some more honey-bread this morning?" "No, child! don't you know that the honey is all eaten? There's not a drop left!"

Autumn comes apace, "in russet mantle clad," and the bees must be prepared for the winter. A visit from an old bee-keeping friend is invited for consultation. "Your stocks are too light, my good friend; they must be fed plentifully if you would hope to winter them safely." But the wife objects to buying sugar at present high prices, and suggests it had better be delayed till spring. The husband yields, and when spring arrives, he is told "Oh, its impossible to buy honey now; besides, there will be pasturage in plenty in a few weeks, and then the bees can shift for themselves." The good-natured easy soul knows well enough the impoverished and starving condition of his bees, but his exigent *impecuniosity* at the time, together with his desire to preserve domestic peace and tranquillity, easily persuade him to omit the feeding. Honey-taking was an easy operation, but money-spending is a very different matter. And what is the state of the apiary now? The four exhausted colonies vainly explore every cell and cranny in their hives; spring is still backward, and the weather too cold; the needed supplies are not furnished; and finally the struggling, suffering insects succumb and die of sheer starvation. No sugar need now be bought! The populous and heavy stocks would certainly have survived the winter, and their surplus stores would have adequately provided for the wants of the weaker. They, however, had to be sacrificed at the pressing importunity of the wife, and the children luxuriated for a brief season on a dear-bought delicacy. Bee-culture has been brought to a close in that family, and it is lucky if reproachful epithets are not sometimes interchanged between "the lord and lady there." The Committee of Ways and Means refuses to

provide funds for the purchase of another outfit. Would not some benevolent friend come to the rescue, and present the unfortunate apiarian with a few stocks for a first start? Possibly, matters would now be better managed. It was not exactly ignorance that caused failure here, for the good man knew better. It originated in a culpable and pitiable compliance on his part with the unreasonable solicitations of the wife. How many promising apiaries are annually ruined by similar causes! I conceive that I have clearly established my position that there is a worse enemy of the busy bee than any yet mentioned in the books.

LORENTZ.

[From the Bienenzeitung.]

A Winter's Supply.

How much honey is required, on an average, to support a medium-sized colony during the winter? This is an important question to a novice in bee-culture. Writers differ very much on the subject, and with most of them the statements they give are probably mere guesswork, based on the partial experience of others. I have devoted some time to an investigation, and it may be interesting and useful to make known the results obtained by carefully weighing a number of stocks, monthly, during a series of years.

In most districts the actual gathering season embraces only four months—May, June, July, and August. Rarely do the stores increase, even in fine weather, in April and September; and it is doubtful whether, in those months, bees ever do more than sustain themselves. During the remainder of the year they are consumers. A medium-sized colony, wintered in the open air, will require and use, of pure honey, in

September . . . 4 pounds	January . . . 2 pounds
October 2 "	February . . . 2 "
November . . . 1 "	March 5 "
December . . . 2 "	April 3 "

The greatest diminution of weight takes place in March and September; the least in November.

Nine pounds of honey will suffice to sustain a colony from the end of September to the end of February; or seven pounds will carry it from the end of October to the beginning of March. From three to five pounds will suffice for a colony from the close of November to the first of March. If we would avoid the necessity of feeding from the end of October to the opening of the season in May, a colony should have at least fifteen pounds of honey; and at least twenty-one pounds will be needed if the weighing take place on the first of September, and the supply is to suffice till the beginning of May. When brooding is recommenced in a hive, at the approach of spring, the consumption of stores is largely enhanced, and the supplies must be adequate to the exigency, or the population will not increase, but rather decrease, as the elder bees, enfeebled by the rigors of winter, are daily disappearing.

HEUBEL.

[From the Bienenzeitung.]

Another Exception.

It is commonly believed that when a queen-cell is found opened at the side, the royal embryo either died before maturity, or was killed by an earlier-hatched rival, and then torn out of the cell. Until recently I was firmly of this opinion myself, but an observation made in my own apiary satisfied me that it is not invariably correct.

One of my common stocks made no progress whatever this spring, but was, on the contrary, evidently dwindling away. Yet the colony, though small, appeared to be healthy, gathering honey and pollen diligently, and promptly repelling assailants from other hives. I was certain it did not suffer from want of supplies, and I knew that its queen was only two years old, and should therefore still be vigorous and prolific. I fed it repeatedly with diluted honey to encourage brooding. The honey was readily taken up, but no increase of bees followed. Finally I made a closer examination, and found a comb filled with drone brood in worker cells, a number of drones already hatched, the drone-breeding queen perambulating the comb, and no worker brood whatever. I killed the queen, and on the 18th of May inserted an eight-day old Italian queen cell, which was well received. Subsequently I found the bees in part covering the queen cell, and in part congregated on the drone brood.

On the 23d of May I made another examination, and observed that the queen cell had been opened on the side, and supposed that the embryo queen had perished before hatching, as I had brought the cell in my pocket-book from a distant apiary, and it might thus have been injured. I examined the cell closely, and having satisfied myself that the cap had not been removed or opened, I cut it to pieces with my pen-knife, which I was afterwards sorry for.

On the 25th of May I was about to introduce another queen cell, when I saw the young Italian queen of the previous cell moving about among the bees. But how she got out of the cell is a mystery to me. If the colony had been populous and disposed to build comb, I should have been inclined to believe that the queen had emerged in the normal manner; that the cap had then fallen back, reclosing the orifice, as often happens; that some of the bees finding it in this state had reattached it with a film of wax; and that others, seeing a closed royal cell, and knowing a queen "was out," tore it open laterally. Yet it seems altogether unlikely that this would be done in so weak a colony. But if not, why was the cell opened on the side? Did the embryo queen lie in it in a reversed position, (which I have known several times to happen,) and then cut her way out through that part of the cell not lined by the cocoon? Or was the opening made by the workers, to liberate the mature queen? I confess I can give no satisfactory explanation of the occurrence. So much, however, is evident—that there was a deviation, in this case, from the usual course of things; and that it constitutes an exception from the general rule. O. ROTHE.

How Do Bees Track Honey?

In the second edition of "*The Bee Flora of Germany and Switzerland*," its author, Dr. Alefield, undertakes to show, by very plausible reasoning, that bees, when in quest of honey or pasturage, are guided, not by the sense of smell, but by that of sight.

Little as might be objected to this theory so long as it regards only individual bees in search of honey, there still remains the further query, how do other bees become apprized of the discovery, and by what means are they guided to the spot where the blossoming field, or the accessible honey-pot is found? In my view, Dr. Alefield should likewise have answered this query; and as he has not done so, I submit the following solution:

Every observant bee-keeper is aware that the returning honey-laden bee is besniffed as she drops on the alighting-board, or passes through the crowd at the entrance of her hive, and is at times even very officiously overhauled and pertinaciously detained by the vigilant guards there stationed. Whether or not she gives up to them any portion of her gleanings, matters not. She is examined and diligently watched, and when she re-issues, after storing away her contributions to the common fund, the guards, now on the "*qui vive*," eagerly brush the dust from their eyes with their front feet, and keenly scrutinize the direction of her flight. Before losing sight of her, one of the guards follows in hot haste; a second pursues in the same airy path, and is rapidly succeeded by a third and fourth; and thus, in due order and succession, they arrive at the *plac*er where the first *prospecting* explorer accidentally discovered the coveted nectar or exposed honey-pot.

This view is sustained by the facts—

1. That the bees of one colony in an apiary will sometimes long frequent a spot, or even rob a hive, before those of a neighboring colony will seem to be conscious of the game, or participate in the spoil. There must consequently be some mode by which the bees of the same colony are conducted to the place frequented. And the explanation I have given seems to be the most simple and natural.

2. That during the gathering season, the bees do not leave their hive in masses in the morning, but separately, one after another, in Indian file, passing on in a sort of "goose march" in the air to their journey's end; and the line of march being once established, bees of other colonies not yet conversant of the way may join in the procession, thus reach the quarry, and become patchers of the common spoil.

JULY, 1866.

NIEHRING.

WE have received a copy of the "*Bee-keeper's Text Book*," by H. A. King, of Nevada, Ohio. It is a small and very neatly-printed volume, with a full reference index, and thus be conveniently consulted by practical bee-keepers on their operations.

THE correspondence between the Revs. Messrs. Langstroth and Kleine, contained in the present number of the BEE JOURNAL, corroborates the opinion expressed by us in the September number, that the ultimate test of the purity of the Italian bees is not in the color or makings of either queens or drones, but in those of the workers.

Bee Funeral.

A correspondent of an English paper transmits the following:

"On Sunday morning last I had the pleasure of witnessing a most interesting ceremony, which I desire to record for the benefit of your readers, and if Dr. Cumming, the *Times*' bee-master, happens to be one of them, I would particularly commend it to his notice. Whilst walking with a friend in a garden near Falkirk, we observed two bees issuing from one of the hives, bearing between them the body of a defunct comrade, with which they flew for a distance of ten yards. We followed them closely, and noted the care with which they selected a convenient hole at the side of the gravel walk—the tenderness with which they committed the body, head downward, to the earth—and the solicitude with which they afterward pushed against it two little stones, doubtless 'in memoriam.' Their task being ended, they paused for about a minute, perhaps to drop over the grave of their friend a sympathizing tear, when they flew away, and, as John Bunyan says in his dream, 'I saw them no more.'"

Foulbrood.

Mr. Herman has shown, in the *Bienenzeitung* for 1864, No. 6, page 67, that foulbrood can and does originate from the use or consumption by the bees of honey contaminated by verdigris. When rendering honey I have never permitted copper vessels to be used; but when diluting honey for feeding bees, I generally make use of either a silver spoon or a small tin ladle. If I happened to let the silver spoon lay in the honey awhile, it would become quite black, and if not soon cleaned, the remainder of honey collected in the bowl of the spoon would become surrounded with a black border. Silver, as is well known, contains a portion of copper. The same appearances presented themselves when a tin ladle was used. Diluted honey appears to be a powerful solvent, and it is hence an interesting query whether greater caution be not commendable in the use of silver and tin vessels as receptacles for honey intended for bee-food. An old practical bee-keeper once assured me that he always found that colonies fed with lukewarm honey became foulbroody. He said he sacrificed several colonies in experiments to assure himself of the correctness of his observations; but I cannot say with what degree of care his investigations were made.

GRAZ.

SENILTSCH.

For the American Bee Journal.

What is the Matter?

Some time in July last I noticed indications of queenlessness in one of my Italian stocks, and as it contained a queen for which I had paid Mr. Langstroth twenty dollars, I felt somewhat mortified to find that she was indeed dead, and that the bees had failed to supply her place with another. I immediately gave them eggs and immature brood, intending, when they should have sealed queen cells nearly mature, to remove these, and give them a fertile queen. In ten days I examined them, and could find neither queen cells nor young bees of any kind. Felt beat, but as I wished to save the stock, I gave them a choice Italian queen, taken from one of my most populous stocks, for which they seemed very thankful.

Supposing all to be well now, I paid no further attention to them for about three weeks, when I examined them again, and could find neither queen, eggs, nor brood in any stage. Here was a pozer. The bees had probably killed her before she laid any eggs. I now took a young fertile queen from a nucleus, and introduced her. They fought her for nearly two weeks, and then stung her to death in my hand.

I now let them remain for a few days, hoping they would repent; and finally I offered them another queen, which shared the fate of her predecessors. Supposing now that they had exalted one of their own number to the royal throne, I moved the hive to a new stand, and when the bees were in full flight, I placed on the old stand a similar hive supplied with full combs. When nearly all the bees had gone back to the old stand, I smothered the rest with brimstone, hoping thereby to destroy the false queen. After their old hive was given them again, they manifested unmistakable symptoms of loss of queen, and I now gave them a full swarm, taking the precaution to confine the queen.

The workers agreed very well. In two days I liberated the queen, and in an hour afterward had the satisfaction of finding her at the entrance—dead! Having one more fertile queen, I resolved to make one effort more to save the stock, and after she had been caged for a week, I liberated her. An hour later I examined, and found her on one of the combs, and the bees fondling her. "Got 'em now," thought I, as I closed the hive. But judge of my feelings when, this morning—twenty hours afterward—I found her on the ground in front of the hive, with a teacupful of dead bees. She was still alive. I fed her and gave her to another stock. As the bees of this perverse stock are still killing each other off, I propose to run the thing my own way, and will brimstone them.

If any one can offer a solution of such "strikes" of the usually easily-managed inmates of the honied workshop, I would be edified.

During all this time I could find no eggs nor brood.

H. C. B.

CHARLESTON, ILL.

Bee-feed.

Mr. A. Hoffman, of Blankenheim, near Weimar, communicates to the *Bienenzeitung* the following recipe for preparing an economical bee-feed, which, he says, can be safely and advantageously used where honey cannot be procured except at an exorbitant price:

"Into an enamelled iron vessel put four pounds of crushed loaf-sugar, two pounds of water, and one ounce of cream of tartar. Stir the whole well, and set it on the stove or a fire, and keep it boiling for half an hour. Add as much water as evaporates while boiling, so as to prevent the syrup from becoming discolored, and take care not to overheat the sides of the vessel, the bottom of which only should be exposed to the fire. When the syrup is perfectly formed, remove the vessel from the fire, pour in a little more water, and stir in very gradually, in small portions, two or three ounces of prepared chalk previously mixed with water. The introduction of the chalk will cause ebullition, so long as the mass contains any acid. When this ceases, the acid is completely neutralized, and litmus paper dipped in the syrup will not turn red. The vessel must now be replaced, and the boiling continued, till no more foam or scum rises, and the weight is reduced to six pounds, or fifty per cent. more than that of the sugar used. Then cover and let it stand till the following morning, when the syrup is to be poured off carefully from the white deposit in the vessel. The syrup thus prepared is a transparent pale yellow, of about the consistence of new honey; has a pure sweet taste; is readily consumed by the bees, and may be safely fed at any season. It will keep for years without crystallizing, and if in time it thicken somewhat, quickly liquifies again on the application of a moderate heat. The preparation of it is practically much less difficult than the process described would lead one to suppose."

For the American Bee Journal.

A Large Stock of Bees.

A few years ago I wintered 163 stocks of bees in a room eight feet broad by twenty-eight feet long. The five last days of February being warm and damp, and having neglected to remove to their stands soon enough, the bees left their hives in such numbers as to conceal the hives by hanging in front and in every available space. The ceiling above was nearly covered. One bunch was as large as eight or ten swarms that get together at swarming time. I supposed at the time that the queens had left their hives, and expected to save but a few stocks. Smoke was introduced to drive the bees in, but it increased the number outside. They were carried out at night, the bees being brushed out of the way of the hands to take hold of the hives. The bees were brushed off from the bottoms or bunches of hay before placing the hives on their stands. After flying, the number was equalized in each hive by changing places. Each queen staid in her own hive, and no stocks were lost.

J. M. M.

ST. CHARLES, KOE CO., ILL.

For the American Bee Journal.

Rev. George Kleine on Color, as a Test of Purity in Italian Bees.

MR. EDITOR: After reading the article in your July number, from the pen of Rev. George Kleine, I sent him an order for an Italian queen.

From his letter to me you will see that his experience in queen raising agrees fully with the following statement in my circular:

"The color of the queens and drones raised from pure mothers varies greatly, but all their worker progeny show distinctly the three yellow bands or rings. Queens reared from them in good colonies, where forage is abundant, are generally handsome, while those reared from impure mothers are seldom highly colored."

I cannot yet reconcile Mr. Kleine's article with his letter to me, but doubt not that there is a satisfactory solution of the seeming contradiction. Like Mr. Kleine, I have procured queens from the best sources in Italy and Germany, but have never met with one whose queen and drone progeny were invariably highly colored.

L. L. LANGSTROTH.

OXFORD, BUTLER CO., OHIO, Nov., 1866.

Extracts from a letter from the Rev. George Kleine to Rev. L. L. Langstroth.

LEUTHORST, HANOVER,
October 26th, 1866.

DEAR SIR: It gives me great pleasure to send you as good an Italian queen as I have in my apiary. If I had received your letter earlier in the season I might have procured for you a queen whose drone progeny would perhaps have been handsomer.

Ever since I obtained the Italian bee, I have given special attention to the drones, and have come to the conclusion that if they are from a pure queen, their lighter or darker color has no influence upon their posterity. I have ordered queens from the best sources, and while I have constantly found among them a great diversity of colors, they have invariably proved themselves to be pure.

When I commenced raising these bees, I selected for the breeding of drones only such queens as would produce those most highly colored, but I now pay no attention to this, finding it unnecessary when I know that my queens are pure, and that the less highly-colored drones produce likewise a pure and beautiful progeny.

According to my experience, the country in the vicinity of Lake Maggiore possesses the Italian bee in its highest purity. That the lightest-colored queens often produce dark-colored queen progeny seems to be the general rule; at least among all my queens, imported from the best sources, I have not found a single exception to this rule. Such dark queens, however, if purely fecundated, give a beautiful posterity, often more beautiful than that from the handsomest mothers. I had one which was darker even than the darkest queens of the black race, and yet her workers were the handsomest I could show.

When I first attempted to introduce the Italian bee into Germany, I demanded of those from whom I imported them, queens whose progeny would invariably be highly colored, offering to pay for such the highest price. They replied that though they had none but pure bees, they could not send me such queens as I desired. Since, although dark queens were very often found in their apiaries, such queens were as pure as the lightest-colored. So it seems to have been in the time of Virgil, nearly two thousand years ago, who advises to discard such dark-colored queens. Like him, I prefer to select as breeders the highest-colored queens.

All the visitors to my apiary have expressed their pleasure at seeing the hive you sent me, and it unquestionably attracts attention above all my other hives. I shall not fail to give a full description of it in my *Bee Journal*.

I remain, with the greatest esteem and respect, your obedient,

GEORGE KLEINE.

[From the *Bienenzeitung*.]

Cure of Foulbrood.

In the *Bienenzeitung*, No. 18, for 1863, I inquired of bee-keepers whether a cure for foulbrood was not known to some of them, which they would be willing to communicate to me. I received numerous letters in reply, suggesting various processes; and several prescriptions, said to be efficacious, were sent to and published in the *Bienenzeitung*. Of these latter I have used two, and, as I firmly believe, with the best results.

The first was as follows: Grate and pulverize a nutmeg, and mix with honey sufficient for ten feeds. Give an infected colony one dose every alternate evening.

The second—Take 1½ ounces pulverized *sassa* aniseed, and pour on it a quart of boiling water. After cooling, pass the water through a fine sieve or strainer, dilute therewith two quarts of honey, and add one dram tincture of opium. Feed foulbroody stocks therewith morning and evening. This quantity is sufficient for twelve colonies.

These remedies have been used by me and several other bee-keepers in my neighborhood. I say advisedly, "and several other bee-keepers," for there are some who abominate the very name of foulbrood. Their stocks may be ever so weak and disinclined to labor. Colony after colony may decamp even while the finest pasturage surrounds them; and though every monthly revision of their apiaries adds to the list of perished stocks, and places others on the sick list; yet foulbrood, "oh, no, they never mention it."

Since using the medicine, I have frequently examined my hives, anxiously inspecting every brood-comb—fearing lest I should detect some new trace of the malady. But I rejoice to say that I have not found one suspicious cell in any of the hives which had been under treatment; nor has the disease reappeared in those of my neighbors, though I have seen that the evil is still ex-

tending in the apiaries of others whose practice it is to "let nature take its course."

I should say, decidedly, that we had effected a cure of foulbrood by means of those remedies, were it not for the fact that there are some colonies in my neighborhood which were certainly foulbroody last year, and which are apparently thriving now, and have swarmed this spring. But these are mostly such stocks as are usually looked after with attention only once a year—about the time of the honey harvest. It is therefore far from certain whether these, notwithstanding their fair seeming, are really free from the disease. I have, however, seen with my own eyes that stocks which were thoroughly foulbroody last year, and to which the medicine was freely administered, are entirely free from the disease this year. Another season will fully decide.

J. CONRAD.

Bees in Russia.

In the northwestern parts of the Governments of Novgorod, Peskov, and the former Polish provinces of Ismolensk and Witebsk, the hives are wintered in the open air on their summer-stands, without being protected by straw or other covering. Even the cracks and crevices are not closed with clay. The hives in general use are lagers, and as they are placed at a small elevation from the ground, they are often so covered with snow that they are scarcely visible. Though they are exposed to very severe cold—the thermometer being frequently as low as 30° Reaumur—these colonies generally pass the winter safely. Perhaps the snow in which they are almost buried contributes to their preservation. They are placed, not horizontally, but with the end containing the entrance considerably elevated. The end-pieces are movable, and are taken away in living, or when honey is wanted. While I resided in the Government of Ismolensk, in the winter of 1860-61, the lower end-pieces of two hives belonging to one of my neighbor's dropped out, and the end, six inches square, remained open till spring; yet the bees survived. I subjected one of my own hives to a similar experiment in the winter of 1861-62, leaving the lower end open all the time, and exposed to storms and snow. On the 20th of April the bees flew finely for the first time, and I found less than 150 dead. Next day they gathered pollen from the *Anemone pulsatilla*.

DR. ASMUTZ.

For the American Bee Journal.

Editor Bee Journal: I wish to correct or rewrite my last article—see October number, p. 80.

"Having the empty combs, I have taken from three swarms of bees 75 pounds of honey each—worth \$22.50 each. From a stock of Italians, three hundred pounds, or ninety dollars worth, was taken; and seventy-five pounds each was taken from two stocks that deserted or swarmed out last spring for want of food. They were revived and fed five pounds of honey each, leaving a balance of seventy pounds to each hive."

J. M. M.

ST. CHARLES, ILL.

For the American Bee Journal.

Extraordinary Swarming.

I presume the readers of the JOURNAL would like to know when anything unusual happens in Bee-land. I am not much of a writer, but more of an observer. Last year I had a hive of half-breed Italian bees that beat anything I have heard of in the swarming line, having produced an increase of ten from one—all natural swarms. They came off in the following order: The first on May 12th; the second, May 16th; the third, May 18th. The first young swarm sent off two about the same time; and the old stock swarmed again in August, thus making in all ten young swarms. The old stock gave 37½ pounds box honey.

DELHI, OHIO, NOV. 15.

J. L. DAVIS.

Draining Honey from the Combs.

Those of our readers who prefer eating "run honey" to honey in the comb, may be glad of some instruction as to the best way of separating the two. For this purpose it is better to let the honey run without squeezing, in order to preserve both its transparency and flavor.

Take a sharp knife and slice the combs on both sides, keeping the knife parallel with the partition wall, so that every cell may be laid open. Place these broken combs in a sieve or on a piece of muslin stretched across and tied round the opening of a pan or large-mouthed jar. Allow the honey to flow out of the combs spontaneously, and reserve the squeezing process for a separate jar, so that the drained honey of the first jar may be perfectly pure, both in appearance and flavor. That which has pressure put on it will be waxy in flavor and thick. Some persons recommend that the opened combs be placed in the sun, as the heat will cause the honey to run more freely. The great disadvantage of this is the temptation the honey will offer to the bees, who will be eager to gain a share.

Honey, whilst in the combs, keeps remarkably well when left in the supers; if cut out, the combs should be folded in writing paper and sealed up, so as effectually to prevent the free entrance of air. They should be placed in a warm dry closet.

THE culture of bees would be greatly promoted if a knowledge of it were considered necessary as one of the regular qualifications of a gardener. So little time is needed to gain the skill requisite for the tending of an apiary, that it seems only reasonable to expect it of a well-taught gardener, and he should feel a pleasure in the circumstance of its forming a part of his duties. In Germany, where a country-gentleman's table is kept constantly supplied with fresh honey, the gardeners are expected to understand the management of hives, and in Bavaria, modern bee-culture is taught in the colleges to all the horticultural students. Travellers in Switzerland will call to mind the almost invariably practice of placing new honey on the breakfast tables at hotels in that country.